

The R.L. Drake DDC806 is a low noise downconverter designed for translating digital signals from their off-air or CATV channel to a 44 MHz IF output. The output of the DDC806 can be connected to a DUC series upconverter to place the digital signal on a new output channel.

When the DDC806 is used with the DUC550 or DUC860, all input/output channel combinations are usable except "on channel" conversions.

The DDC806 may be used with VSB, QAM, or QPSK digital signals. VSB signals up to 16VSB and QAM signals up to 256QAM may be translated. The channel bandwidth must be 6 MHz. The DDC806 provides low noise figure and low phase noise as well as a flat passband to minimize signal deterioration.

**Special Note:** When an analog NTSC signal is present on the lower adjacent channel to the selected digital input channel of the DDC806, there will be some amount of the audio carrier (250 kHz below the edge of the selected channel) from this lower adjacent NTSC signal present in the IF output of the DDC806. This is then translated to the new output channel with the DUC upconverter, even though it will also be slightly attenuated in the upconverter. This will not cause a problem if the translated output channel has no channel or another digital channel located in the lower adjacent channel position in the output channel lineup. However, if there is an NTSC analog channel located adjacent to the lower edge of the translated digital channel, there will be a potential beat formed between the audio carriers of this lower adjacent analog and the translated lower adjacent analog. To avoid this potential problem, avoid having a lower adjacent analog at both the input and output of the translated digital channel(s). It is OK if there is a lower adjacent NTSC signal at either the input or output sides – but not both.

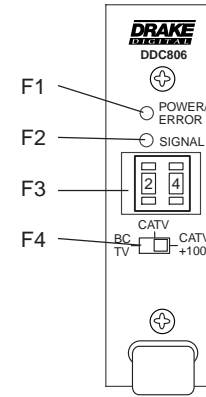


Figure 1

**F1 - POWER/ERROR Indicator**

Lights when the unit is connected to the required source of DC power via the rear panel DC INPUT connector. A flashing condition indicates an invalid channel setting or other conditions that would cause the unit to operate on an invalid channel. The RF output is switched off for flashing (ERROR) conditions.

**F2 - SIGNAL Indicator**

Lights when a signal is present.

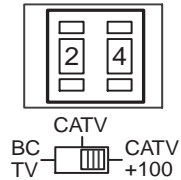
**F3 - Channel Number Switch**

Sets the desired operating channel for standard CATV channels 02 through 125 or Broadcast TV channels 02 through 69. See also Item F4 which sets the type of channel (CATV or Broadcast TV) and sets the leading "1" for CATV channels 100 through 125.

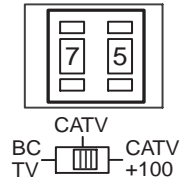
**F4 - Mode Switch**

Sets the type of channel, CATV or Broadcast TV ("BC TV"). The "+100" position of the switch sets a leading "1" for CATV channels 100 through 125. See also Item F3 for setting the channel number.

For example:  
Setting for CATV channel "124"-



For example:  
Setting for CATV channel "75"-



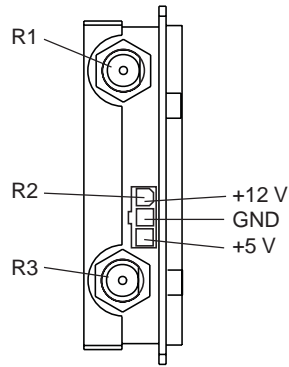


Figure 2

**R1 - IF OUTPUT Connector**

This is the 44 MHz IF output. The level is +30 dBmV.

**R2 - DC INPUT Connector**

This 3-pin connector (Male) accepts the appropriate mating DC power cable. Observe proper orientation and wiring.

**R3 - RF IN Connector**

This is the downconverter RF input from an antenna or CATV feed.

**CONNECTIONS AND CONTROLS**

All connections to and from each upconverter are made through the rear panel.

**DESCRIPTION**

Figure 4 shows a typical installation utilizing the Drake DRMM12 rack with 1 DDC806 downconverter, 3 DUC upconverters, 2 QAM modulators, and 2 QPSK demodulators. A PS8 power supply module is used to power all units.

**RACK MOUNTING**

Adequate ventilation is very important in multichannel installations. Units should be spaced apart vertically by at least 1.75" wherever possible, and some air movement is mandatory in enclosed rack cabinets. Excessive heat will shorten component life and modulator performance will be degraded without proper cooling.

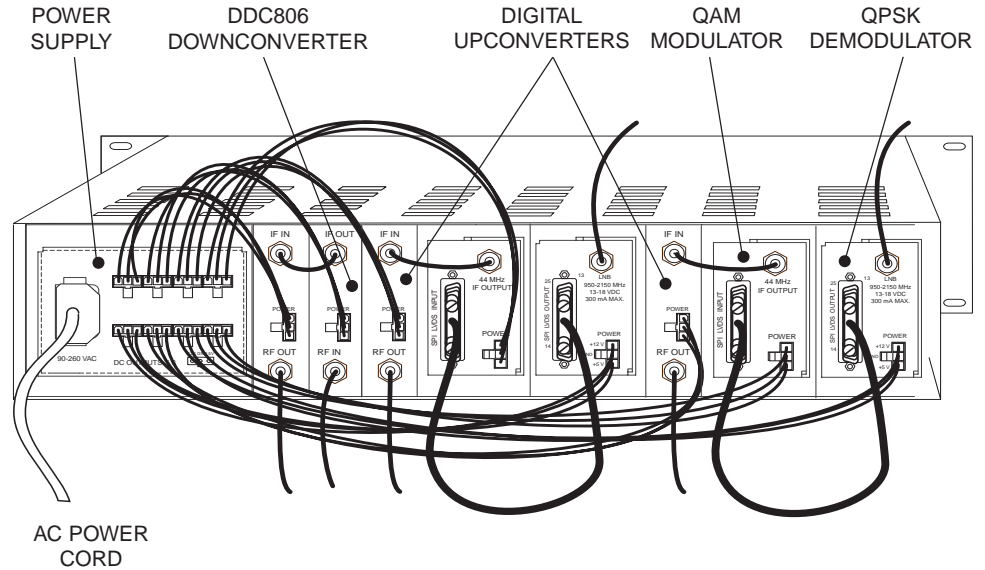


Figure 3

TABLE 1: CATV   

CABLE TV CHANNELS		
Channel Number	Center of Channel	
BAND	EIA/NCTA Numeric Equivalent	Frequency in MHz
LOW	2	57
	3	63
	4	69
	5	79
	6	85
	MID	95
96		99
97		105
98		111
99		117
14		123
15		129
16		135
17		141
18		147
HIGH	19	153
	20	159
	21	165
	22	171
	7	177
	8	183
	9	189
SUPER	10	195
	11	201
	12	207
	13	213
	23	219
	24	225
	25	231
	26	237
	27	243
	28	249
	29	255
	30	261
	31	267
	32	273
33	279	
34	285	
35	291	
36	297	

CABLE TV CHANNELS		
Channel Number	Center of Channel	
BAND	EIA/NCTA Numeric Equivalent	Frequency in MHz
HYPER	37	303
	38	309
	39	315
	40	321
	41	327
	42	333
	43	339
	44	345
	45	351
	46	357
	47	363
	48	369
	49	375
	50	381
	51	387
	52	393
	53	399
	54	405
	55	411
	56	417
	57	423
	58	429
	59	435
	60	441
	61	447
	62	453
63	459	
64	465	
65	471	
66	477	
67	483	
68	489	
69	495	
70	501	
71	507	
72	513	
73	519	
74	525	
75	531	
76	537	
77	543	
78	549	




CABLE TV CHANNELS			
Channel Number	Center of Channel		
BAND	EIA/NCTA Numeric Equivalent	Frequency in MHz	
HYPER	78	549	
	79	555	
	80	561	
	81	567	
	82	573	
	83	579	
	84	585	
	85	591	
	86	597	
	87	603	
	88	609	
	89	615	
	90	621	
	91	627	
	92	633	
	93	639	
	94	645	
	  		
	100	651	
	101	657	
	102	663	
	103	669	
	104	675	
	105	681	
	106	687	
	107	693	
108	699		
109	705		
110	711		
111	717		
112	723		
113	729		
114	735		
115	741		
116	747		
117	753		
118	759		
119	765		
120	771		
121	777		
122	783		
123	789		
124	795		
125	801		

TABLE 2: BC TV   

VHF BROADCAST CHANNELS	
Channel Number	Center of Channel Frequency (MHz)
2	57
3	63
4	69
5	79
6	85
7	177
8	183
9	189
10	195
11	201
12	207
13	213

UHF BROADCAST CHANNELS	
Channel Number	Center of Channel Frequency (MHz)
14	473
15	479
16	485
17	491
18	497
19	503
20	509
21	515
22	521
23	527
24	533
25	539
26	545
27	551
28	557
29	563
30	569
31	575
32	581
33	587
34	593
35	599
36	605
37	611
38	617
39	623
40	629
41	635
42	641
43	647
44	653
45	659
46	665
47	671
48	677
49	683
50	689
51	695
52	701
53	707
54	713
55	719
56	725
57	731
58	737
59	743
60	749
61	755
62	761
63	767
64	773
65	779
66	785
67	791
68	797
69	803

**RF INPUT**

Frequency Range: \* 54 to 806 MHz;  
 OFF-AIR channels 2 to 69,  
 CATV channels 2 to 125.  
 Input level Range: -15 dBmV to +30 dBmV.  
 Impedance: 75 Ohms.  
 Noise Figure: 12 dB, maximum.  
 Image Rejection: 80 dB.

**Output**

IF Frequency: 44 MHz.  
 Level: +30 dBmV,  $\pm 2$  dB.  
 Impedance: 75 Ohms.  
 Frequency Stability:  $\pm 5$  PPM.  
 IF Bandwidth: 6 MHz @ -3 dB, SAW filtered.  
 SSB Phase Noise: -92 dBc @ 10 kHz offset.  
 Amplitude Flatness  
 (6 MHz Channel):  $\pm 0.5$  dB.

**Digital Performance**

MER with 8VSB: >25 dB (unequalized), >35 dB (equalized).

**GENERAL**

DC Power Input: +12 V  $\pm 5\%$  @ 150 mA typical, 175 mA maximum.  
 +5 V  $\pm 5\%$  @ 275 mA typical, 325 mA maximum.  
 Operating Temperature: 0° C to +50° C ambient.  
 Size: 1" W x 3.5" H x 9.25" D. (2.5 cm) W x (8.9 cm) H x (23.5 cm) D.  
 Weight: 15.6 oz. (0.44 Kg).

\* When the DDC806 is used with the DUC550 or DUC860, the RF input channel should not be the same as the DUC output channel. All other channels are available.

Specifications subject to change without notice or obligation.

**THREE YEAR LIMITED WARRANTY**

R.L. DRAKE COMPANY warrants to the original purchaser this product shall be free from defects in material or workmanship for three (3) years from the date of original purchase.

During the warranty period the R.L. DRAKE COMPANY or an authorized Drake service facility will provide, free of charge, both parts and labor necessary to correct defects in material and workmanship. At its option, R.L. DRAKE COMPANY may replace a defective unit.

To obtain such warranty service, the original purchaser must:

- (1) Retain invoice or original proof of purchase to establish the start of the warranty period.
- (2) Notify the R.L. DRAKE COMPANY or the nearest authorized service facility, as soon as possible after discovery of a possible defect, of:
  - (a) the model and serial number,
  - (b) the identity of the seller and the approximate date of purchase; and
  - (c) A detailed description of the problem, including details on the electrical connection to associated equipment and the list of such equipment.
- (3) Deliver the product to the R.L. DRAKE COMPANY or the nearest authorized service facility, or ship the same in its original container or equivalent, fully insured and shipping charges prepaid.

Correct maintenance, repair, and use are necessary to obtain proper performance from this product. Therefore carefully read the Instruction Manual. This warranty does not apply to any defect that R.L. DRAKE COMPANY determines is due to:

- (1) Improper maintenance or repair, including the installation of parts or accessories that do not conform to the quality and specifications of the original parts.
- (2) Misuse, abuse, neglect or improper installation.
- (3) Accidental or intentional damage.

All implied warranties, if any, including warranties of merchantability and fitness for a particular purpose, terminate three (3) years from the date of the original purchase.

The foregoing constitutes R.L. DRAKE COMPANY'S entire obligation with respect to this product, and the original purchaser shall have no other remedy and no claim for incidental or consequential damages, losses or expenses. Some states do not allow limitations on how long an implied warranty lasts or do not allow the exclusions or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. This warranty shall be construed under the laws of Ohio.

***DRAKE***®

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